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Keith Edward Short

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KRAJEC PATENT OFFICES, LLC
820 WELCH AVENUE
BERTHOUD, CO 80513

EXAMINER

KANG, INSUN

ART UNIT

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2193

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/711,287	Applicant(s) SHORT ET AL.	
	Examiner INSUN KANG	Art Unit 2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. This action is responsive to the amendment filed on 11/12/2008.
2. Claims 1-23 are pending.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 23 is rejected under 35 U.S.C. 102(e) as being anticipated by Rohfleisch et al. (US 7,058,855) hereafter Rohfleisch.

Per claim 23,

Rohfleisch discloses a turn on software suite comprising:

a bootstrap code configured to start said software suite on an embedded processor, said embedded processor being embodied in a single board device having application specific board level circuitry, said embedded processor having a first number of input paths and a second number of output paths (i.e. col. 4 lines 20-40; col. 11 line 10-25)

a test engine configured to create a plurality of test workers (i.e. col. 12 lines 5-25)

each of said test workers being configured to exercise one of said input path or output path, at least two of said test workers being configured to operate on one of said input

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paths in parallel (i.e. col. 11 line 10-25) said turn on software suite being capable of executing on said embedded processor and operating said plurality of test workers (i.e. col. 11 lines 35-50).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over DeRolf (U.S. Pat 6,904,544) in view of Narayan et al. (US 7,010,782) hereafter Narayan.

With respect to claim 21, DeRolf discloses a test system comprising:

test sequence; (Col 4:5-15, "...implement the expert diagnostic system...comprised of one or more of the test modules...").

DeRolf does not explicitly teach that the test sequence is reusable. However, Narayan teaches such a reusable test sequence was known in the pertinent art, at the time applicant's invention was made, to test similar systems or components (abstract). It would have been obvious for one having ordinary skill in the art to modify DeRolf's disclosed system to incorporate the teachings of Narayan. The modification would be obvious because one having ordinary skill in the art would be motivated to reuse the existing test sequence without generating a new test sequence.

DeRolf further discloses:

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a first command interpreter adapted to interpret said reusable test sequence, (Col 3:40-50, "...The rule base code references test descriptors...") said first command interpreter being adapted to operate on a first embedded processor; said first embedded processor being in a first circuit having a first functionality (Col 3:34-45, "...installed on host systems 2 and 4 to test paths...", e.g. See Fig. 1, elements 2 and 4 and related text)

and a second command interpreter (Col 3:40-50, "...The rule base code references test descriptors...") adapted to interpret said reusable test sequence, (Col 3:34-45, "...installed on host systems 2 and 4 to test paths...", e.g. See Fig. 1, elements 2 and 4 and related text)

said second command interpreter being adapted to operate on a second embedded processor; said second embedded processor being in a first circuit having a second functionality; (Col 3:34-45, "...installed on host systems 2 and 4 to test paths...", e.g. See Fig. 1, elements 2 and 4 and related text) said second embedded processor being in a second circuit having a second functionality said second functionality being different from said first functionality (i.e. Col 3:34-45); wherein said first command interpreter and said second command interpreter each comprise: a command interface adapted to receiving commands (Col 3:60-67, "...such as command line or graphical user interface...") and outputting results; (Col 11:20-30, "...verbose command causes the state machine to display all messages to a screen display...")

an engine adapted to running a test sequence; (Col 4:5-15, "...implement the expert diagnostic system...comprised of one or more of the test modules...") test sequence comprising at least two threads configured to operate in parallel on a single port (i.e. Col 12:20-33)

an output driver adapted to timestamping an outgoing message and storing said outgoing message; (Col 11:45-55, "...a start record with a timestamp...")

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an input driver adapted to timestamping an incoming message and storing said incoming message; (Col 11:45-55, "...a start record with a timestamp...") and an analysis routine adapted to analyzing said outgoing message and said incoming message. (Col 11:45-60, "...These error log files contain important information that should accompany the failed components back to the repair station...")

7. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oberlaender (U.S. PGPUB 2005/0102572) in view of Narayan et al. (US 7,010782) hereafter Narayan.

With respect to claim 22, Oberlaender discloses a method of developing a circuit(Col 3:0023-0024, "...a circuit designer...") having an embedded processor(Col 1:0004, "...the embedded processor...") comprising: designing a circuit having said embedded processor, said circuit having a predefined function;(Col 3:0024, "...the design circuit model...") assembling said circuit; (Col 3:0023, "...The circuit designer typically defines an SOC circuit...") designing software operable on said embedded processor, said software adapted to enable said circuit to perform said predefined function; (Col 3:0023, "...Equivalency checking...") loading said embedded processor with a test platform software(Col 3:0025, "...simulation model includes a processor core...") comprising: a command interface adapted to receiving commands and outputting results; (Col 4:0027, "...to interface circuit...")

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an engine adapted to running a test sequence;(Col 2:0012, "...each write operation of the test program...")

Oberlaender does not explicitly teach said test sequence comprising at least two threads configured to operate in parallel on a single port. However, Nagel teaches such multithreading was known in the pertinent art, at the time applicant's invention was made, to enable parallel computing (i.e. col. 11 lines 43-50) . It would have been obvious for one having ordinary skill in the art to modify Oberlaender's disclosed system to incorporate the teachings of Nagel. The modification would be obvious because one having ordinary skill in the art would be motivated to simultaneously run threads for parallel computing.

Oberlaender further discloses:

an output driver adapted to timestamping an outgoing message and storing said outgoing message; (Col 4:0027, "...having timestamp values...")

an input driver adapted to timestamping an incoming message and storing said incoming message; (Col 6:0047-0048, "...having timestamp values...")

an analysis routine adapted to analyzing said outgoing message and said incoming message and create results; (Col 8:0061-0062, "...that does not match the instantaneous data values...")

a display routine for displaying said results; (Col 8:0063, "...Data is typically written to fifo devices...")

creating said test sequence;(Col 8:0062, "...sanity check tool...")

transmitting said test sequence to said embedded processor loaded with said test platform software; (Col 6:0048, "...parallel shows the transaction stream...")

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operating said test sequence on said embedded processor; (Col 7:0050, "...automatic tests of the memory content...")

and analyzing said results.(Col 8:0060, "...the sanity check process begins...")

8. Claims 1-7, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeRolf (U.S. Pat 6,904,544) in view of Toth. (U.S. Pat 4,829,520).

With respect to claim 1, DeRolf discloses a software diagnostics platform(Col 14:54-65, "...a processor...a diagnostic software embedded...") comprising:

a command interface adapted to receiving commands(Col 3:60-67, "...such as command line or graphical user interface...") and outputting results; (Col 11:20-30, "...verbose command causes the state machine to display all messages to a screen display...")

an engine adapted to running a test sequence; (Col 4:5-15, "...implement the expert diagnostic system...comprised of one or more of the test modules...")

an output driver adapted to timestamping an outgoing message and storing said outgoing message; (Col 11:45-55, "...a start record with a timestamp...")

an input driver adapted to timestamping an incoming message and storing said incoming message; (Col 11:45-55, "...a start record with a timestamp...")

and an analysis routine adapted to analyzing said outgoing message and

said incoming message to determine at least one performance parameter; (Col 11:45-60, "...These error log files contain important information that should accompany the failed components back to the repair station...")

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DeRolf does not explicitly teach said software diagnostics platform being operable on an embedded processor being operable on a single board.

Toth discloses said software diagnostics platform being operable on an embedded processor(Col 3:10-25, "...Microprocessor...") being operable on a single board(e.g. See Fig. 1 element Board) in an analogous system for the purpose of providing and communicating fault diagnostics in electronic circuits to repair systems. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to create a software diagnostics tool operable on an embedded processor being operable on a single board. The modification would have been obvious because one of ordinary skill in the art would have been motivated to provide and communicate fault diagnostics in electronic circuits to repair systems.

With respect to claim 2, the rejection of claim 1 is incorporated and further, DeRolf discloses that the command interface is operable to communicate via a terminal interface. (Col 3:59-67, "...entered through a host system interface...")

With respect to claim 3, the rejection of claim 1 is incorporated and further, DeRolf discloses further comprising: a host program operable on a host system, said host program having a graphical user interface. (Col 3:59-67, "...or graphical user interface...")

With respect to claim 4, the rejection of claim 1 is incorporated and further, DeRolf discloses that the test sequence comprises a single test routine. (Col 3:45-60, "...Each test module...")

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With respect to claim 5, the rejection of claim 1 is incorporated and further, DeRolf discloses that the test sequence comprises a test routine that is repeated for a predetermined period of time. (Col 7:48-55, "...to run a series of isolation tests on the disk...")

With respect to claim 6, the rejection of claim 1 is incorporated and further, DeRolf discloses that the test sequence comprises multiple threads of commands. (Col 3:59-67, "...user input commands...")

With respect to claim 7, the rejection of claim 1 is incorporated and further, DeRolf in view of Toth discloses at least two of said multiple threads of commands being configured to operate on a single port in parallel (Col 13:15-20).

With respect to claim 9, the rejection of claim 1 is incorporated and further, DeRolf discloses further comprising an initiator adapted to determine if an I/O device is present. (Col 13:15-20, "...a device interface...")

With respect to claim 10, the rejection of claim 9 is incorporated and further, DeRolf discloses that the initiator is further adapted to perform a diagnostic routine with said I/O device. (Col 11:13-20, "...the diagnostic routine...")

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9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over DeRolf (U.S. Pat 6,904,544) in view of Toth. (U.S. Pat 4,829,520) and further in view of Benner. (U.S. Pat 5,072,371)

With respect to claim 8, the rejection of claim 1 is incorporated and further, Neither DeRolf nor Toth disclose that the performance parameter comprises determining one of a group composed of: message transfer time, average message transfer time, and average data throughput per unit time. Benner discloses that the analysis comprises determining one of a group composed of: message transfer time, average message transfer time, and average data throughput per unit time (Col 30:40-55, "...and transfer time for a subsequent message overlaps the transfer time for a previous message...") in an analogous system for the purpose of providing efficient communication between parallel processors that communicate fault diagnostics to repair systems. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to create a software diagnostics tool that determines the average message transfer time between messages. The modification would have been obvious because one of ordinary skill in the art would have been motivated to provide efficient communication between parallel processors that communicate fault diagnostics to repair systems.

10. Claims 11-17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toth. (U.S. Pat 4,829,520) in view of DeRolf (U.S. Pat 6,904,544)

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With respect to claim 11, Toth discloses a system comprising: a device with an embedded processor,(Col 2:13-30, ‘...the on-board microprocessor...’) said device having a specific function,(Col 2:13-35, “...the functional circuitry performs whatever function is desired of the board...”) but does not disclose a first software system operable to run on said embedded processor and enable said device to perform said specific function; and a second software system operable to run on said embedded processor, said second software system comprising: a command interface adapted to receiving commands and outputting results; an engine adapted to running a test sequence; an output driver adapted to timestamping an outgoing message and storing said outgoing message; an input driver adapted to timestamping an incoming message and storing said incoming message; and an analysis routine adapted to analyzing said outgoing message and said incoming message.

DeRolf discloses a first software system operable to run on said embedded processor(Col 3:34-40, “...a storage diagnostic tool that may be installed on host systems...”) and enable said device to perform said specific function; (Col 3:45-55, “...Each test module includes code implementing a particular test operation...”) and a second software system operable to run on said embedded processor,(e.g. See Fig. 1, element 4) said second software system comprising: a command interface adapted to receiving commands(Col 3:60-67, “...such as command line or graphical user interface...”) and outputting results; (Col 11:20-30, “...verbose command causes the state machine to display all messages to a screen display...”)an engine adapted to running a test sequence said test sequence comprising at least two threads capable of operating on a port in parallel; (Col 4:5-15, “...implement the expert diagnostic system...comprised of one or more of the test modules...”) an output driver adapted to timestamping an outgoing message and storing

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said outgoing message (Col 11:45-55, "...a start record with a timestamp..."), said output driver being configured to send said outgoing message to each of said first number of output ports; (Col 1:30-40, "...tests all qualified disks in a storage device that may be reached through a path...") an input driver adapted to timestamping an incoming message and storing said incoming message; (Col 11:45-55, "...a start record with a timestamp...") and an analysis routine adapted to analyzing said outgoing message and said incoming message. (Col 11:45-60, "...These error log files contain important information that should accompany the failed components back to the repair station...") in an analogous system for the purpose of providing and communicating fault diagnostics in electronic circuits to repair systems. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to create a software diagnostics tool operable on an embedded processor being operable on a single board having fewer number of input ports than the embedded processor. The modification would have been obvious because one of ordinary skill in the art would have been motivated to provide and communicate fault diagnostics in electronic circuits to repair systems.

With respect to claim 12, the rejection of claim 11 is incorporated and further, DeRolf discloses that the command interface is operable to communicate via a terminal interface. (Col 3:59-67, "...entered through a host system interface...")

With respect to claim 13, the rejection of claim 11 is incorporated and further, DeRolf discloses

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further comprising: a host program operable on a host system, said host program having a graphical user interface. (Col 3:59-67, "...or graphical user interface...")

With respect to claim 14, the rejection of claim 11 is incorporated and further, DeRolf discloses that the test sequence comprises a single test routine. (Col 3:45-60, "...Each test module...")

With respect to claim 15, the rejection of claim 11 is incorporated and further, DeRolf discloses that the test sequence comprises a test routine that is repeated for a predetermined period of time. (Col 7:48-55, "...to run a series of isolation tests on the disk...")

With respect to claim 16, the rejection of claim 11 is incorporated and further, DeRolf discloses that the test sequence comprises multiple threads of commands. (Col 3:59-67, "...user input commands...")

With respect to claim 17, the rejection of claim 11 is incorporated and further, DeRolf discloses that the input driver is further adapted to validate said incoming message. (Col 13:15-20, "...a device interface...")

With respect to claim 19, the rejection of claim 11 is incorporated and further, DeRolf discloses further comprising an initiator adapted to determine if an I/O device is present. (Col 13:15-20, "...a device interface...")

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With respect to claim 20, the rejection of claim 19 is incorporated and further, DeRolf discloses that the initiator is further adapted to perform a diagnostic routine with said I/O device. (Col 11:13-20, "...the diagnostic routine...")

11. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Toth. (U.S. Pat 4,829,520) in view of DeRolf (U.S. Pat 6,904,544) and further in view of Benner. (U.S. Pat 5,072,371)

With respect to claim 18, the rejection of claim 1 is incorporated and further, Neither Toth nor DeRolf disclose that the analysis comprises determining one of a group composed of: message transfer time, average message transfer time, and average data throughput per unit time. Benner discloses that the analysis comprises determining one of a group composed of: message transfer time, average message transfer time, and average data throughput per unit time (Col 30:40-55, "...and transfer time for a subsequent message overlaps the transfer time for a previous message...") in an analogous system for the purpose of providing efficient communication between parallel processors that communicate fault diagnostics to repair systems. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to create a software diagnostics tool that determines the average message transfer time between messages. The modification would have been obvious because one of ordinary skill in the art would have been motivated to provide efficient communication between parallel processors that communicate fault diagnostics to repair systems.

Response to Arguments

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12. Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to INSUN KANG whose telephone number is (571)272-3724. The examiner can normally be reached on M-R 7:30-6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis A. Bullock, Jr. can be reached on 571-272-3759. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Insun Kang/

Examiner, Art Unit 2193